IFWO

RAW SEQUENCE LISTING   DATE: 09/02/2004
PATENT APPLICATION: **US/10/750,622** TIME: 09:58:33

Input Set : **D:\MMI1150.txt**
Output Set: **N:\CRF4\09022004\J750622.raw**

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 3 <110> APPLICANT: MMI GENOMICS, INC.
 4       DeNISE, Sue K.
 5       CHARTERIS, Paul
 6       ROSENFELD, David
 7       HOLM, Tom
 8       BATES, Stephen
10 <120> TITLE OF INVENTION: COMPOSITIONS, METHODS, AND SYSTEMS FOR INFERRING BOVINE
BREED
12 <130> FILE REFERENCE: MMI1150
14 <140> CURRENT APPLICATION NUMBER: US 10/750,622
15 <141> CURRENT FILING DATE: 2003-12-31
17 <150> PRIOR APPLICATION NUMBER: US 60/437,482
18 <151> PRIOR FILING DATE: 2002-12-31
20 <160> NUMBER OF SEQ ID NOS: 64922
22 <170> SOFTWARE: PatentIN version 3.1
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26 <212> TYPE: DNA
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34 cggattaaag aaacaatcca atggtgacaa agaaatattt ataacataaa tcataattaa     180
36 atattagata aataaacata aaaataatgt cccaaaagga ttcccaagaa agacaattta     240
38 atggacaaag gcagggatat atatgaatgc ttaaatggtt tcatgaatat tgattagctr     300
40 gatttttttt agtgtgtgag tgaaggagta gtatgctgag ggacaaaagt gatggaccca     360
42 aatctgagtt ttatggtttt tcagataaat acgcattttt gtttatttac acagagagat     420
44 attgtcctac taatatgata tctccaccag gcccattaaa acttatgtgc taacctctgt     480
46 ttcacacatt aacgacaaac aggacataac gcttctgcac gaaaggaaac acatactgag     540
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61 gcccatgact gtgtgccagc tacctcgaac atggggaaat cgtttctcat caattgtacc     180
63 ttttagcgca aaagtttctt aagctgtagg tgcagaagag attgtcccag tctgacagat     240
65 ggagaaactg aggcagagag gacgaagggc ttgtttcctc atcagagcta gagagcagay     300
67 gtgtttcata ttttttttcc tcagactacg tttttccacc tgctactgta aggaccctca     360
69 ccaagtttat gacccttaaa atgtctttta tttcttaaaa tccaaaagta ataattaata     420
71 gccccaagaa cttagtgcca ctgcagctgc tgaggccagg aacggttact cggtaggagc     480
73 ctaatgctgg agcagtgctg cccctggtg cctactggga gtattcccag atttccctag     540
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 88 gcttccattt ttaatcctct ttgtgttcac tactttatat tgaaagtatt cttcaggctg      180
 90 attttttttt tcccccctcc aacccttcag tcatacgcag tgaaaaaagt catatgaatt      240
 92 aaatataaat aggctttcta ggctttaaaa attattaaat attcacagtt cctaagtcty      300
 94 gactctttct gtggcagcca ggcactactc aggggaagag atataaaagt agctttaaaa      360
 96 cagaaggaca agatgctact ttctttagta aaaaggtgaa agaaatttta agatgagatt      420
 98 cagaaaaggg gcaggttagg ttctaaacta agattctcaa gttctaaaca gaatttcgct      480
100 taaggacact tatttattaa aactcctttt cctttttccc aatgaagcct aataccctga      540
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115 caacacaaac atggatctag atggattatc ataaagcaaa catctctgga cccaccacag      180
117 gagtcaataa atacaacaca ggagacatca cagaagactg ctgttagcct cccaatcccg      240
119 aggcctcttc tctcccagaa aaggcagtct ctaacaaagt tgtcttagtt tctcttcccr      300
121 tttctccaaa gttttaaaat cttagcagac ccttcacatt taaagttgtg gacctctttc      360
123 tatgctaatt aattcatcac tccttttaat gactctattt taaaaagaga ggtacctgck      420
125 tacatttttt aactgctcag attttaaatg tctacttgtc atattaacgt gaattgtttt      480
127 actgtgcagt atgcrgatgc ttccaggtgc cagtcatttg gataagcatt gccatttgcc      540
129 cccagttaaa tggccttaga cctctgaaat acttctaatt cattcctttg tgccctttca      600
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142 atagatagct gtagatataa gtatcagtct cagtactcac atggcatttt ttttcctgct      180
144 tgcttttgaa taaaaaccta cataatgaac acgataatat ggtaggattt gggccatgta      240
146 attttcccat ttagactttt ttcattcatt ttctgtaatc tgatctcatg gtcttcttgm      300
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165 ggagcggctt aggaaggttt taatttagct gaaaatacaa atggcaaaat caaaggtaat   240
167 tttttccctc ctgctgtaag aaacccagtg acatctgtga ggtggtttga ttcacatcar   300
169 gggaagcttt tgaaaaatgg agatggcaat taattggact tcagaggatg gtgacagttt   360
171 tttctaatgt cttgatttcc tatcaagaca ttggccactt ttctgcaggg cctcaagaca   420
173 gtaattagat gtcatgtcgg aatgtgactc caaggtctca ggcgacacca gttctaacta   480
175 gagcgccccc aaacacagga tgagacaatc agcttggccg gcggcgtcac ctgagagtca   540
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190 aaacactact gtgaattact gttggattgt ggtggtggtg gtggtgcagg aggaggagag   180
192 gagaggagac ccctttaggg gaatgtgttg gggttgagca ttgagaacta ggatgtttct   240
194 gtgtggatca ggtttgtgca gagatggatc aatgactcag gagtgtacac agatcctatk   300
196 ctttgtaccc tttagaaatt aggctgatca tcagcctcac cttgaaatat ctcttattcc   360
198 tttgtaatca acatgtggaa ctgttgaaag aatgtctgct gatggatatc tttcaactaa   420
200 tcttaaaatg gtggatgtct gtttaatttt aaactgggta ccatgacatc ccctgtgctg   480
202 aacattcaca aacagctgga cttagaagga aatgtacaaa tgtagtgttc acagattact   540
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208 <211> LENGTH: 598
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215 <223> OTHER INFORMATION: n is any nucleotide
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222 gtgttgaata tatggacttt catgacgtta cctaaacact tggccttcct ctcaacatcc   180
224 taaacatttg cttgtgaatt ttcttgattt gggatttata tttctgaagc atacacccaa   240
226 gggaagggat tcaggactgt cctcacccac ctctgtccat ggctcttttc cacaaaaacr   300
228 cctattcctt ctaggtcatc cttttgttca ctgccttccc tgctggtcta cccagctcct   360
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232 atcttctcct gcccatctct gaatacatct gggacctgat ttcatctgga ctgctgctct   480
234 ggttgtgtca ttgataagtt agctgacaaa gacaaaatga agtctaatac aaaatgaacc   540
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Input Set : D:\MMI1150.txt
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251 atcctcattg ggacattttc tgagctgagg tgtgagcaaa gcatcagcta aaacatgcac   240
253 cctgaggagc aaatagaaac ctaggtgggg ccccatcctc cttgcatggc tgcaggggtr   300
255 gtgtttgaat gggtggtcct tcctgactga tggccaccgt cagagggaaa tctctgaaag   360
257 cagataccag tttgagccat ggctctgccc gctctgggct gtgtgacctc agataagtca   420
259 ctgcgtgtct ctgagaccat ttctcttttt cgtgaggagg tgagggtcag ggctatggtg   480
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281 tgacaggtat cattcagccg ccctggcttg tgaggggtgg tataaatgaa tctcagggct   180
283 cctggcttca catgattcaa acatgcgtta ttgaagatgg atgttcctta aaaaaagatt   240
285 gatggtggat gccgggctta gggtgccatt tatcattttg aatattattt agacttgccr   300
287 tgtaaacctg taacttgaga gttggacgag ccgrggctgg gtaggggcct gtgtgtgtgt   360
289 gtgtttccat cgattggcct tgggttatca ttgctgctga ccagatgcag tccctcccat   420
291 ttacagtata gaagacaccc ccctcccgta aaggagggac ggtttaattt tgaataattt   480
293 ccaaggacac tggggaaaat gaagtatctg tgatttacac taacaggcaa cttctttctc   540
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313 nnnnnnnnnc tcaacccagc acagaggggc tggatcagaa ctcacttctc atcgggtttt   180
315 ccaccatggg gttcccctcg cccggacgct cgatcttgaa aacttcatcc acgaagacaa   240
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319 ggccagtctc accgatgacc ccaaaagacc cggccacttg gacatgttct cagagcccat   360
321 gaacagctct gattctaatt ataysgtaga agaggttttc gygggccct atgaactcgc    420
323 ctagctacta ccctcgmaaa ttcaagtcct accacatcag gaacgaggtg aaaacaaata   480
325 agccagagtt tcagtatgtg atgcattttc gagaataatt tttaaccttt ggcaggtgag   540
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Input Set : D:\MMI1150.txt
Output Set: N:\CRF4\09022004\J750622.raw


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340 agcttaaatc agaaaacccs ttctttaata cagagtgaga agtggaatct ctgcttagtg  180
342 tgacatgaaa aatccagtct ctgtgagttt gctattagag taagagggat tcgttaggtg  240
344 agactaatgg gtagttgctc catggcatac gggatcttcc tggaccagga attgaacccr  300
346 tgtcycctgc atttcaggca gattctttac cactgagcca ccgaggaagc cctgtgcttg  360
348 ctcttytgtt tgttttttctt ggtgctgaga gtcacaggga tagatctgcc tggttgaatc  420
350 tgttgtgaaa gctttagcct caagatattc atgctcagca cagattcaga aaatgttctg  480
352 aatcatctgc tggctgaaac atccraggac tcagtacatc gtctgacaga tatgtggaca  540
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367 acacagaggg tgagagaccc tctctgcgca tgcggtctga tgggcagagg ccagtgaccc  180
369 gctgggcagc tcaggccagc cctgggcctc actgaaacct gtccctggcc cagcaggccc  240
371 ctgcttccag ggaggttctg gggtgtgatg tgggaagcgg ccttggtctg taaatgcacr  300
373 gtgcggagga tgcgtgccgt cccctgtgga gtgcggtctc agggcctggg cctaggtgca  360
375 tctgcaccca gacagccttg tttcattatc ttatgtattt gtctgtggct gtgtcaggcc  420
377 tcagctgcgg cacgcagagt ccaggcgtgc gggcttctcc cttgtcgagg tgtgcaggat  480
379 cagtagctgc gacccacagg ctgagctgct ccgcggcagg tgggactcag ctcccccaagc  540
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399 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnntctgcta ggttacattc  180
401 actataggcc taggagggct accagctggg gagagcggat ggcccactga aaagagcatc  240
403 ctaacagggc cacctagtga atgctcagct tcttagggaa acttctttc agtattggtr  300
405 tctgaagtat tgatctgatg gaggaagagc catgctcttc atggagacca ttatcaggga  360
407 ttttatggac tattgcttca ggtggagtgt ggagtaatta tttccttaag actctttgta  420
409 tgtataattg tattcctgct actcaggata tgttcagaaa ataattacta ttgaattaac  480
411 tgcattgaca gtctttcart tctactacca agactgtttg catttaagct aagtttcctc  540
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416 <210> SEQ ID NO: 15
417 <211> LENGTH: 600
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RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 09/02/2004
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Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

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Seq#:19; N Pos.  24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:19; N Pos.  44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:19; N Pos.  64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83
Seq#:19; N Pos.  84,85,86,87
Seq#:20; N Pos.  1
Seq#:27; N Pos.  1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:27; N Pos.  24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:27; N Pos.  44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:27; N Pos.  64,65,66,67,68,69,70
Seq#:33; N Pos.  1,2,3
Seq#:35; N Pos.  1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:35; N Pos.  24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:35; N Pos.  44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:35; N Pos.  64,65,66,67,68,69,70,71,72,73,74,75
Seq#:37; N Pos.  1,2
Seq#:38; N Pos.  1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:38; N Pos.  24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:38; N Pos.  44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:38; N Pos.  64
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 09/02/2004
PATENT APPLICATION: **US/10/750,622**   TIME: 09:58:34

Input Set : **D:\MMI1150.txt**
Output Set: **N:\CRF4\09022004\J750622.raw**

```
Seq#:44; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:44; N Pos. 24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:44; N Pos. 44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63
Seq#:44; N Pos. 64
Seq#:46; N Pos. 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23
Seq#:46; N Pos. 24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43
Seq#:46; N Pos. 44,45,46,47,48,49,50
```

VERIFICATION SUMMARY   DATE: 09/02/2004
PATENT APPLICATION: **US/10/750,622**   TIME: 09:58:34

Input Set : **D:\MMI1150.txt**
Output Set: **N:\CRF4\09022004\J750622.raw**

```
L:218 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:0
M:341 Repeated in SeqNo=8
L:277 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:0
L:309 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:0
M:341 Repeated in SeqNo=11
L:395 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:0
M:341 Repeated in SeqNo=14
L:535 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19 after pos.:0
M:341 Repeated in SeqNo=19
L:567 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20 after pos.:0
L:761 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:0
M:341 Repeated in SeqNo=27
L:928 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33 after pos.:0
L:987 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:0
M:341 Repeated in SeqNo=35
L:1046 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:0
L:1080 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:0
M:341 Repeated in SeqNo=38
L:1245 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44 after pos.:0
M:341 Repeated in SeqNo=44
L:1304 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46 after pos.:0
L:1417 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50 after pos.:0
L:1559 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55 after pos.:0
M:341 Repeated in SeqNo=55
L:1726 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:0
L:1866 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:66 after pos.:0
M:341 Repeated in SeqNo=66
L:2243 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:80 after pos.:0
L:2275 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:81 after pos.:0
L:2575 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:92 after pos.:0
L:2879 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:103 after pos.:0
M:341 Repeated in SeqNo=103
L:2992 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:107 after pos.:0
L:3159 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:113 after pos.:0
L:4215 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:152 after pos.:0
M:341 Repeated in SeqNo=152
L:4625 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:167 after pos.:0
M:341 Repeated in SeqNo=167
L:4873 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:176 after pos.:0
M:341 Repeated in SeqNo=176
L:5040 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:182 after pos.:0
M:341 Repeated in SeqNo=182
L:5072 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:183 after pos.:0
M:341 Repeated in SeqNo=183
L:5347 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:193 after pos.:0
L:5678 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:205 after pos.:0
M:341 Repeated in SeqNo=205
L:5872 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:212 after pos.:0
```

VERIFICATION SUMMARY   DATE: 09/02/2004
PATENT APPLICATION: **US/10/750,622**   TIME: 09:58:34

Input Set : **D:\MMI1150.txt**
Output Set: **N:\CRF4\09022004\J750622.raw**

L:6201 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:224 after pos.:0
L:6476 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:234 after pos.:0